cal Gazette, for December last, that he met with one instance in which, in the right arm, instead of there being a biceps muscle having two origins, there was simply a one-headed muscle arising from the coracoid process. No tendon could be found passing through the joint answering to the long head of the biceps, neither was there any appearance of a bicepital groove; the capsular ligament was, perhaps, thicker than ordinary.

4. *Recurrent Laryngeal Nerve.*—It is generally stated by anatomists, that the distribution of the recurrent laryngeal nerve in the interior of the larynx is confined to the crico-arytenoideus posticus, crico-arytenoideus lateralis, and the thyro-arytenoideus muscles, and that none of its filaments extend to the other muscles of the larynx. Majendie seems to attach considerable interest to the limited distribution of this nerve, asserting that it is entirely restricted to the three muscles above mentioned. Cloquet has made a similar assertion; and Mr. Bell affirms that the termination of the recurrent nerve is exclusively confined to the muscles just named, and to the mucous membrane of the larynx. Mr. G. RAINEY, in a communication in the *London Medical Gazette*, for December last, says, that in repeated dissections of the human larynx, he has uniformly been able to trace a branch to the arytenoideus transversus and the arytenoidei obliqui muscles.

5. *Proper Nerve of the Tensor Muscle of the Tympanum, or of the Internal Muscle of the Maleus.*—All anatomists have hitherto admitted that this muscle receives a nervous filament from the portio dura; but an attentive examination shows that it possesses a special nerve, furnished to it by a ganglion adhering to the inferior maxillary nerve. At the posterior and inferior part of the lower maxillary foramen, there is a rather large, irregular ganglion of a grayish red colour, strongly adhering to the inferior maxillary nerve; at the posterior and superior part of this ganglion arise two nervous filaments; the first, or the superior, already known, contributes to form the nervous anastomosis of Jacobson; the other, or inferior filament, is appropriated to the tensor muscle of the membrana tympani; it passes backwards, and a little upwards, and after a course of three or four lines, gains the internal and posterior surface of this muscle. Where the latter becomes fleshy, this nerve divides into many small filaments which penetrate between the muscular fibres, and are there lost. This nerve corresponds to the internal part of the middle meningean artery, and to the superior part of the Eustachian tube, where the osseous portion of this canal unites with the cartilaginous; it is situated below the nervous filament that contributes to form the anastomosis of Jacobson, with which it is parallel, and above the spinous apophysis of the sphenoid bone.—*Journal des Progrès, Vol. XII. from the Répert. d'Anat. Tom. VI.*

PHYSIOLOGY.

6. *Circulation, Absorption, and Secretion.*—Some very interesting experiments in relation to these functions have lately been performed by M. E. HERING, Professor in the Veterinary School at Stuttgard. They were made upon horses, and consisted in the transfusion into the current of the circulation of an innocent substance, easy to recognise by proper chemical tests. The blood was then drawn at determinate intervals from other parts of the body than those at which the introduction had been made, and upon examination and comparison of the time occupied by the substance in passing from one vessel to another, an attempt was made to ascertain the precise degree of velocity with which the blood circulates. The substance chosen was a solution of the hydro-protoferrocyanate of potass, which, with the proper precautions, may be mixed with the blood in considerable quantity, without occasioning the least inconvenience. It

is, moreover, easily detected in either the solids or fluids of the body. As a test for this purpose, the sulphate of iron was found preferable to the sulphate of copper, or the hydrochlorate of iron. In order to procure an immediate blue precipitate with the first named agent, it was only necessary to add after it a little of the hydrochloric acid. By this means the hydrocyanated ferruret of potass could be distinctly detected, though diluted in twenty thousand times its volume of the serum of the blood.

Previous to giving the results of the experiments performed by M. E. Hering, it may be well to observe that for the purpose of making the transfusion into a vein, he preferred a funnel to a syringe. The pipe of a large syringe furnished with a stop-cock, being adapted by means of a screw to a brass funnel, holding about two ounces, and the pipe inserted into the vein, the funnel was filled, the cock turned, and the liquid being thus allowed to pass into the vessel, care was taken to close the stop-cock in time to prevent the access of air. The following conclusions are furnished by our experimentalist:—

1. A solution of hydrocyanated ferruret of potass introduced into the jugular vein of a horse, reaches that of the opposite side in from twenty to twenty-five seconds; the opposite external thoracic in from twenty-three to thirty seconds; the great saphena in twenty seconds; the external maxillary artery in from ten to twenty-five seconds; the metatarsal artery of the hind foot in from twenty to forty seconds. It is to be observed that all the vessels just mentioned are of the side opposite to that where the transfusion was made. If the liquid introduced into the veins is moved by the same impulse as the blood, that rapidity with which both are conveyed should be equal. The velocity of motion, however, does not appear to be increased in proportion to the increased rapidity of the pulse, since with different horses, the pulse in which varied from thirty-six to fifty-two, the results were similar.

2. The hydrocyanated ferruret of potass is secreted by the serous membranes with great promptness, but in small quantity. The proportion of this secretion is regulated by the distance of the membranes from the heart, being greatest in those which are nearest. Thus it operates, first upon the internal surface of the pericardium, then successively upon the pleura, the peritoneum, and finally upon the articular capsules of the extremities. The cavities of the ventricles of the brain have only been examined in a few instances, in which no trace of the saline solution was found in them. In the other serous cavities, the time which this solution takes to manifest itself, varies between two and fifteen minutes after its introduction. And these were the last moments in which the animals showed signs of life.

3. In the mucous membranes, the secretion does not take place so soon as in the serous. The foreign substance is, however, after some minutes, discernible on their surfaces. The mucous membrane of the right half of the stomach secretes more promptly, and in larger quantity than that of the intestines, which in turn manifests it sooner than the mucous membrane of the lungs. The secretion takes place still more slowly upon the genito-urinary surfaces, as the portion of hydrocyanated ferruret of potass met with in the urinary passages, proves to be only the secretion of the kidneys. The mucous surfaces covered with a distinct epithelium, (the buccal cavities, the œsophagus, and right half of the stomach in the horse, for example,) offer no trace of secretion from the saline solution transfused.

4. It is difficult to recognise the foreign substance in the liver, spleen, thyroid gland, and certain other glandular organs, in consequence of their darkish colour. Numerous observations seem to show that the salivary glands take a moderate part in its elimination.

5. The kidneys, on the contrary, are employed very actively in this secretion. These organs have always in the course of a minute given decided manifestations of the substance in some part of them. The passage of the urine into the bladder requiring some time, it follows that this organ does not exhibit traces of the hydrocyanate until after a longer interval.

6. The presence of the salt in the lungs is not quite so distinct as might be supposed. Is this attributable to the colour of the organ, or is the passage of the hydrocyanate too rapid to allow the vesicles to attach themselves to the sides of the vesicles, or be excreted by them?

7. In some cases, the saline secretion adheres to the internal surface of the blood-vessels, where it is easily detected by the tests; more frequently, however, it does not adhere at all. Occasionally it is found attached in some, and not in others, the cause of which difference is yet unknown.

8. The time occupied by the solution in reaching the thoracic duct has varied from one to five minutes. It is not discovered so soon in the lymphatic ganglions, from which circumstance our author supposes that there exists a direct communication between the arteries and lymphatic vessels.

9. The foreign substance introduced into the blood is quickly separated from it by the secretory organs, and especially by the kidneys. In many cases the diminution was already sensible in the course of a few minutes, and after five or six hours there remained no longer any trace, not even in the solids.

10. Finally, it results from our author's experiments that the hydrocyanated ferruret of potass may be mingled with the blood without danger to animals. This is not, however, the case with the solution of indigo, and especially with the solution of the sulphate of iron, which last injected into the veins, coagulates the blood, and produces death in a short time.—*Archives Générales, Sept.* 1828, *from the Zeitoch. für Physiol. Tom. III.*

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7. *Reunion of the Ends of Different Nerves.*—M. FLOURENS, in a memoir in the *Annales des Sciences Naturelles*, for February, 1828, states that after having repeated the experiments of Fontana, of Montana, of Cruickshanks, and of others, on the reunion of the divided extremities of the same nerve, sought to determine the effects resulting from the union of the ends of different nerves. He therefore placed them in contact, and there kept them. In every instance the reunion took place. In some of the cases, the return of the function was complete, in others it failed. In all, the transmission of irritations by the united nerves was perfect.

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8. *Identical Active Molecules in Organic and Inorganic Bodies.*—"While Mr. BROWN was examining the pollen of various plants under the microscope, he observed distinct motion in the grains when immersed in water, consisting not only of a change in place, but of form also. Having observed this in the pollen of all the living plants he examined, he next tried to ascertain how long this property continued after the death of a plant, and found that plants dried, or immersed in spirit for a few days, and some even which had been dried for twenty years, and others not less than a century, still exhibited these active particles. Whilst making the observation with the ovula or seeds of the *equisetum*, they were accidentally bruised, which very much increased the number of moving particles; and on bruising the floral leaves and other parts of mosses, they were also obtained.

"With a view of ascertaining whether these active particles, obtained from such different parts of plants, were the supposed constituents or elementary molecules of organic bodies, different animal and vegetable tissues were examined; whether living or dead, if bruised in water, they gave moving particles, identical with those of pollen. They were also found in products of organization, as gum resins, vegetable substances, and even pit-coal. The dust or soot deposited on bodies, especially in London, is entirely composed of them.

As the particles were found in fossil and silicified wood, they were next sought for in inorganic substances, and were at once obtained merely by bruising a small splinter of window-glass upon the stage of the microscope. They were obtained in succession from rocks of all ages, each of the constituents of granite, travertine, stalactites, lava, obsidian, pumice, volcanic-ashes, meteorites, manganese, nickel, plumbago, bismuth, antimony, arsenic, and in every mineral that could be reduced to powder sufficiently fine to be temporarily suspended in water. In many cases the particles seemed to aggregate into linear arrangements of fibrils, consisting of three or four, and these also had motion.

"Wood, linen, paper, cotton, wool, silk, hair, and muscular fibre, being burnt, gave the molecules as evidently in motion as before combustion.

"The form of these molecules appears to be spherical, but modifications of it occur in certain circumstances; the diameters of the particles are from one-fifteenth-thousand to the one-twenty-thousand of an inch.

"The principal substances from which these molecules have not been obtained, are oil, resin, wax, and sulphur; such of the metals as could not be reduced to the state of division necessary for their separation; and finally, bodies soluble in water.

"All these observations were made under a simple microscope, and, indeed, with one and the same lens, the focal length of which is about one-thirty-second part of an inch."—*Philosophical Magazine.*

9. *Effects produced by a division of the Semicircular Canals of the Ear.*—M. Flourens recently presented to the Academy of Sciences of Paris, several memoirs on this subject.

From the ease with which the semicircular canals in birds may be operated on, M. Flourens performed his first experiments on them. In pigeons, which were the subjects chosen, two of the canals are vertical, the upper one of which is the larger, and obliquely directed from behind forward; the inferior is directed from before backward, crossing the third, which is horizontal. A division of the horizontal canal of both sides is immediately followed by a violent horizontal movement of the head, which is so rapid that the bird loses its balance and rolls over, without power of recovering itself. A section of the vertical canal, whether superior or inferior of both sides, is followed by a violent vertical movement, whilst a section of all the canals produces a continued rotatory action of the head. This division of the canals does not destroy life, but the effects produced continue during the remainder of the life of the bird. M. Flourens afterwards repeated the experiments on young rabbits with the same results, except that the movements were less violent. These morbid motions of the head, both in birds and quadrupeds, cease when the animal is quiet, but appear again the moment it attempts to move. It is, says M. F. an extraordinary fact, that parts so minute and delicate should act with so much energy on the system, and it is equally curious that parts which would appear to be specially appropriated to the purposes of hearing should exercise so marked an effect on the above described movements, and above all, that each of the parts should determine a motion in conformity with its own position. Thus a section of the horizontal canal produces a horizontal motion, whilst a vertical section is followed by a vertical motion.—*Annales de Chimie, &c. Sept.* 1828, *and Archives Générales, Nov.* 1828.

10. *Researches on the Pollen of Plants and the ultimate Particles of Matter.*—"The Academy of Sciences, at their meeting of Dec. 8, heard the report of MM. Cassina, Desfontaines, Mirbel, and De Blainville, on a memoir on Pollen and the Spermatic Granules of Animals, by M. Adolphe Brongniart. In a former memoir on the same subject, this gentleman had detailed some interesting and accurately analysed facts; on the theory contained in it the committee had not given any opinion, but had requested the writer to persevere in his observations. In a subsequent paper, M. Raspail, an experienced microscopic observer, had combated the opinions of M. Brongniart, and endeavoured to demonstrate that the granules contained in the grains of pollen, so far from being analogous to spermatic animalcules, are not even organized bodies. After adverting to these memoirs, M. Cassini noticed the opinions contained in a paper by the celebrated English botanist, Mr. Robert Brown. This gentleman thinks with M. Brongniart, that the granules of pollen are endued with a distinct and

independent motion; but on various theoretical points he differs from him. He has not only observed this motion in the granules of living plants, but has also perceived the same property of those of plants dried for a century, and preserved in spirits of wine, and in those of mosses and equisetums living or dried; in the molecules obtained by triturating in water the organic tissue of animals or vegetables living or dead; and in those obtained in the same manner from all sorts of inorganic substances, as glass, granite, &c. In short, he thinks that all the active molecules, organic or inorganic, are the same in nature, form, and size, and endued with the same properties; and not in the least different from those observed in pollen by M. Brongniart.

"In the present memoir, which is principally devoted to the refutation of M. Raspail's objections, M. Brongniart cites, in support of his own mode of observation, the curious fact that plants made to flower in winter, by means of shelter and artificial heat, have generally their grains of pollen filled with a mucilaginous substance, devoid of regular and moving granules; and as these plants rarely fructify, he thence draws an inference favourable to his system.

"Thus, then, the question discussed by M. Brongniart is now debated by three very skilful observers, and resolved in three different ways; for, whilst M. Brongniart admits, in the interior of grains of pollen, regularly organized corpuscles, of a very peculiar nature, distinct from all other bodies, analogous to spermatic animalcules, and essentially destined to produce the embryo; M. Raspail sees nothing in these corpuscles but little resinous masses, shapeless, variable, and absolutely deprived of organization aud of life; and Mr. Brown, discarding at once the exclusive opinions of both, admits in all natural bodies, whether organic or inorganic, active molecules of the same form, size, and nature, and exhibiting a spontaneous motion as soon as they are disintegrated and plunged in fluid.

"The committee, on the one hand, agreed with M. Brongniart and Mr. Brown, that the causes to which M. Raspail attributes the motion of the granules, exercise, in reality, no influence over them; and on the other, they coincided with Mr. Brown, that various inorganic bodies triturated in water, offer, if not always, at least sometimes, corpuscles whose size, form, and motion are nearly the same, under the microscope, with those of the granules of pollen. They also remarked, that the resemblance between the active molecules of Mr. Brown and the spermatic granules of M. Brongniart, furnishes strong presumptions against the hypothesis of the latter. They called the attention of botanists to the singular phenomenon of apparently spontaneous motion, and asked if it might not be attributed to mutual attraction and repulsion. Great difference was observed in the manifestations of this phenomenon; so much so, that under circumstances to all appearance alike, the granules of the same plant at one time exhibited a very perceptible motion, and at another perfect immobility.

"'Such,' said M. Cassini, 'are the external appearances. But must we, from these, necessarily conclude that the internal nature, and all the properties and functions, are absolutely the same, in bodies of so different origin? On this we have not had the temerity to decide; it can only be done after researches much more numerous and profound than we have been able to make.'"—*The Magazine of Natural History, January*, 1829, *from Le Globe, December 13th*, 1828.

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11. *Successive Abolition of the Senses in four children of the same family.*—"Dr. Stengel relates a curious circumstance which occurred in four children, born of strong and healthy parents, and who were affected successively with a malady which manifested itself by the following symptoms: they all continued to thrive, both physically and mentally, until they attained their sixth year; but in their seventh year they all, one after the other, began to feel a particular weakness of the sight, which went on progressively increasing. The intellectual powers at the same time diminished; all those things which interested them before, became now indifferent to them; they by degrees lost the use of speech.

In the ninth year vision became almost abolished, together with the use of the organs of sense. Cold and heat were hardly felt by them; they showed no inclination for food; the sense of hearing was the last to leave them. From the ninth to the fourteenth year, epileptic affections came on, which continued to increase until the fifteenth year. At this period a species of mania declared itself. The eldest of these unfortunate children was a boy, who died in this state in his twenty-first year; the second was a girl, who died in her twentieth year; of the other two, who are still living, the one is a boy, aged seventeen years, and the other a girl, aged nine. The same symptoms are present in them, and is supposed that they will meet with the same end as the two first. The youngest child was sent, at four years of age, by its parents, to a great distance from home, with a hope of averting the melancholy catastrophe with which the others met; it continued to enjoy a good state of health until the sixth year, when the malady declared itself, which obliged the parents to send for the child home. All the therapeutic means employed in these cases proved quite unavailing, and had no influence whatever on the march of the disease. It is to be regretted that the bodies of the two who died were not submitted to an inspection."—*Lond. Med. and Surg. Journ. Dec.* 1828.

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12. *Experiments on Cutaneous Absorption.* By Dr. Westrumb.—*Exp. I.* Dr. Westrumb, having prepared a bath of the temperature of from 20° to 22° of Reaumur, containing a grain of hydrocyanate of potash, two grains of nitre, and some grains of musk, he placed his arms in it as high as the elbows, and kept them there for three quarters of an hour. The bath having then been removed, the doors and windows were opened to change the air of the room; nevertheless the odour of musk was manifest in the pulmonary exhalation of the experimenter. He voided his urine immediately after the use of the bath, and at one hour, five hours, and thirteen hours, subsequently. The urine passed after the first hour exhaled a feeble odour of musk. Two specimens were taken of each portion of urine, one to be treated with tests of hydrocyanate of potash, the other for those of nitrate of potash. The presence of the prussiate was distinctly visible in the first specimen, in the second there was no evidence of the existence of nitre.

Exp. II. Was a repetition of the preceding experiment, the author enclosing his mouth and nose in a tube, one end of which passed out of the room, the whole so contrived that he breathed only the external air. After the experiment the pulmonary exhalation was impregnated with the odour of musk, but not so strongly as in the first experiment. This odour was not perceptible in the urine passed a short time after the experiment; but the hydrocyanate of iron was very perceptible in it; nitre could not be discovered in it.

Exp. III. Was a repetition of the preceding experiment, and with the same results, but the experiment was not as carefully made.

Exp. IV. This was a repetition of the two preceding experiments. Every care was taken, and the experimenter continued to respire by the tube for a long time after the experiment. The results were the same as before, only the odour of musk in the breath was less, and disappeared sooner.

Exp. V. The tube being applied to the mouth and nose, the experimenter placed his arms as far as the elbows in a bath of a strong decoction of rhubarb; and had one of his legs rubbed with opodeldoc. He continued his arms in the bath an hour and a quarter. After the first quarter of an hour, the breath had a decided odour of camphor, which increased during the experiment, and was perceptible for six hours afterwards, but feebly. The urine passed a little while after the experiment, and that which was voided at the end of three hours, was of a reddish brown colour, when a solution of potash was added. This colour is attributable to the presence of rhubarb, for the same solution of potash mixed with urine passed *before* the experiment did not cause a similar change of colour. It cannot be said whether the camphor also passed into the urine, though the odour of that collected immediately after the experiment was essentially different from that passed before the experiment.

Exp. VI. Two vesicatories, each the size of a crown, having been applied to the legs of a healthy labourer, who had previously taken a bath to cleanse himself, the lymph was evacuated and cupping-glasses placed over the sores made by the blisters. The man then took a pediluvium of 20° Reaumur, containing hydrocyanate of potash, and the temperature of which was kept the same during an hour and a half. At the end of this period the vesicatories had discharged much, but two hours afterwards sufficient lymph had collected to enable a chemical analysis of it to be made. The small quantity of lymph collected having been diffused in distilled water, was treated with a solution of hydrochlorate of peroxide of iron; the liquid assumed a light bluish-green colour, a certain sign that it contained hydrocyanate of potash; and proving that this had been absorbed. The analysis of the portions of urine voided one hour, three hours, and five hours after the bath, confirmed also this fact. They changed, on the addition of a solution of salt of iron a beautiful blue colour, which was most intense in the portion passed three hours after the bath. The subject of the experiment would not consent to be bled, so that the blood could not be analysed.

Exp. VII. A healthy and robust man continued an hour and forty-five minutes in a foot bath of 22° Reaumur, containing a strong solution of prussiate of potash. The man voided his urine a little before the experiment, and also at two, seven and eleven hours after the bath; the urine passed the second hour on being treated with the hydrochlorate of iron, assumed a fine blue colour, which showed itself more slightly in that passed at the seventh hour, and was scarcely perceptible in that passed at the eleventh hour. Some ounces of blood were obtained from this subject, by means of scarifications and cups to the thighs. The clots of blood being treated at first with a little nitric acid, were diffused in distilled water, and then submitted to the action of hydrochlorate of iron; it seemed to contain some slight but indistinct vestiges of hydrochlorate of potash.

Exp. VIII. Four ounces of blood were taken from the arm of a person who had remained two hours in a foot bath, of from 20° to 22° Reaumur, in which had been put half an ounce of hydrocyanate of potash and two ounces of nitre. This blood contained evidently hydrocyanate of potash: as to the nitre, its presence was not distinctly evident. The urine contained the hydrocyanate of potash.

Exp. IX. A person introduced his arms as far as just above his elbows, into a bath containing a decoction of rhubarb; on withdrawing his arms from the bath at the end of an hour and a half, they were scarified, and cupping-glasses applied to them, by which means some blood was obtained. This blood being diffused in water, and treated with a solution of potash, assumed a deep brown colour. The same change of colour, indicating the presence of rhubarb, took place in the urine passed a little while after the use of the bath.

Exp. X. After having opened, emptied and covered with cupping-glasses the vesications produced by blisters in a healthy man, his feet were placed for an hour in a bath composed of a saturated decoction of rhubarb. About a grain of lymph was collected in each cupping-glass; this lymph, as well as the urine, contained rhubarb.

Exp. XI. The hind legs, and the greater part of the body of a dog, was shorn close, great care being taken not to injure the epidermis. The animal was afterwards held for half an hour in a bath of 20° Reaumur, to which had been added a saturated solution of hydrocyanate of potash. The dog having been strangled after the experiment, the blood of the vena cava, the urine of the bladder, the chyle of the thoracic duct were collected, and the lymphatic ganglions of the groin. The prussiate of potash showed itself very distinctly in the blood, but not in the chyle of the thoracic canal or in the inguinal glands. On dropping a solution of hydrochlorate of peroxide of iron on the adipose panicle, here and there a bluish-green colour was produced.

Exp. XII. Another dog was deprived of its hair in the same manner, and frictions made on the shorn parts, with a weak tincture of cantharides, until the skin assumed a red appearance; the animal was then immediately placed in a bath similar to that used in the preceding experiment, in which it was also kept half an hour. The presence of hydrochlorate of potash in the blood of the vena cava and in the small quantity of urine found in the bladder, was distinctly observed; it showed itself also in the chyle of the thoracic duct and in the lymphatic glands of the groins, and the whole of the internal surface of the skin of the hind limbs and of the abdomen assumed a fine blue colour.

Dr. Westrumb draws from these experiments as well as other facts, physiological, pathological and therapeutic, the following conclusions:—

1st. The skin is endowed with an indeterminate faculty of absorption; it can admit and introduce into the circulation all sorts of substances, from the least to the highest degree of fluidity, provided they are soluble.

2d. Some irritating substances which break or destroy the epidermis, are absorbed more quickly and in greater quantity than mild and non-irritating substances; first, because by destroying the epidermis, they remove a first obstacle which opposes itself to their easy absorption; secondarily, because that the irritation which they produce augments the activity of the absorbent veins; thirdly, finally, by overcoming the repulsive force of the lymphatic vessels, they incite these to take part in the absorption.

3d. Mild articles which do not affect nor destroy the epidermis, are absorbed more quickly when the epidermis is injured or removed than when it is perfect; because, when the cuticle is removed, the contact of the foreign substances with the absorbents is immediate.

4th. The vessels of the skin which possess the power of absorbing are some veins and absorbents. The first absorb always; the second do not take part in the absorption of heterogeneous substances here as in other parts of the body, but when their repulsive force has been overcome, or when some cause makes them deviate from their normal action.—*Journal des Progrès, Vol. XI.*

13. *Poisoning of Plants by their own products.*—M. Macaire read before the Physical Society of Geneva some interesting experiments on the effects produced on vegetables by their own juices or products. The general results he obtained were, that the juices of plants which were capable of exercising a poisonous effect on other vegetables, were equally deleterious to the plant which furnished them, thus presenting another analogy between vegetable and animal life. These results can only be accounted for, says M. Macaire, on the following suppositions.—1st. That the alteration which the vegetable extracts undergo by exposure to the action of the air renders them deleterious; or, 2d, by the separation of the poisonous and serous juices in different vessels in deleterious plants. If this latter idea is admitted, the poisonous portion must be considered as a peculiar secretion, and not a fluid necessary to the life of the plant.—*Annales de Chimie et de Physique, Sept.* 1828.

14. *On the Effects of the Gastric Juice on the Stomach after Death, and on Abstinence.*—Dr. Pommer has instituted a number of experiments on dogs, cats, and rabbits, to ascertain the correctness of the opinion of John Hunter, relative to the dissolving action of the gastric juice upon the stomach after death; and he has arrived at the following conclusions:—In animals the gastric and intestinal secretions neither soften nor dissolve the membranes of the stomach or intestines; the secretion of these fluids is rather diminished than augmented during hunger; neither does the latter produce inflammation of the stomach; and death from inanition is the result of the general prostration of the vital forces, and not of inflammation of the stomach. Carnivorous animals support hunger better than herbivorous, and cats better than dogs; carnivorous animals who during abstinence, drink water lives longer than those deprived of drink. Rabbits die often of inanition, although they have still some aliment remaining in

their stomach; these animals never drink; when driven by hunger, they take meat, they die in a short time afterwards, although they can digest this substance, as is easily shown. In animals destroyed by inanition, the veins of the lower stomach are ordinarily gorged with blood.—*Archives Générales, Dec.* 1828, *from the Médic. Chirurg. Zeitung*, 1828. No. 4.

15. *Menstruation at the age of nineteen months.*—A case of this kind is related in the third number of *Meckel's Archiv. fur Anat. und Physiologie* for 1827. At birth this child was of an ordinary size; but after the first month she commenced to grow rapidly, and at nine months it was of the usual size of a child of a year and a half old. About this time she passed from the vagina some drops of blood; at eleven months of age she had another and more abundant sanguineous discharge; and at the same time the mammary gland began to be developed, and hairs appeared on the mons veneris. At fourteen months she had a third, and at eighteen months a fourth sanguineous evacuation from the vagina. The whole physical development of the child is precocious; but her mental faculties are not greater than those of other children of her age; she appears to have no desire for sexual intercourse.

16. *Connexion between Monstrosity and Deficient Development of parts of the Nervous System.*—Professor TIEDEMANN has published, in the *Zeitschrift fur Physiologie*, an interesting series of observations on the connexion between the deficient development of the nervous system and of the extremities in monsters. He thinks "that there is a direct relation between the constitution of the nervous system and the construction of the other parts of the body. With the absence of any nerve there is connected the absence of the organ to which the nerve belongs, and with the imperfect formation of any part of the nervous system there is associated the imperfect development of the organ which it supplies. He is farther convinced, that in all monsters with excess of formation, whether it consists in single parts, or is extended to the whole body; or whether the doubling of parts is of the upper or under portion or to one side, the distributions of the nervous system correspond. The same takes place where two organs are blended into one. Professor Tiedemann, having assumed these as established facts, next proceeds to inquire whether the defective formation of the organs is the consequence of the want of the nerves; or whether the nerves are not formed because the organs are wanting; and conversely, whether the formation of a part in excess is owing to excessive development of the nervous system; or whether the nervous system is in excess because there are supernumerary organs? As the result of a very ingenious and profound inquiry, he concludes that the nervous system, as the first existing apparatus, regulates the formation and development of the embryo, and determines the peculiar form and disposition of the rest of the organs."—*Ed. Med. and Surg. Journ. Jan.* 1829.

17. *On the Powers which move the Blood in the Capillary System.* By Dr. F. F. REUSS.—In Vol. I. p. 423, and Vol. III. p. 194, we laid before our readers a notice of the very interesting experiments of Dr. Dutrochet on the immediate agent of vital movements, from which experiments it would appear that this agent is galvanism or electricity. As connected with this subject, the following experiments and speculations of Dr. F. F. Reuss, published in 1821, in the *Commentationes Soc. Physico-Medicæ Mosquensis*, II. ii. 327, and for a knowledge of which we are indebted to the Edinburgh Medical and Surgical Journal for July last, will be read with interest. Dr. R. relates, in a preliminary essay, several experiments to prove a new property in galvanism, that of impelling water from the positive to the negative pole.

"This impulse," says he, "towards the negative pole is better seen, when the water is contained between two parallel glass plates three or four lines apart from one another, and when the wires are immersed at right angles to the water, being made of gold or platinum, and covered with glass tubes sealed at their extremities to the wires. It is convenient also to keep the wires steady yet moveable by thrusting them through two pieces of cork which rest on the edge of the vessel. If into the apparatus so prepared common water be poured, and the battery charged, the calcareous matter, which is separated by the decomposition of the salts of lime in the water, and causes turbidity, will not only show by its own movements a continual flow of the water from the positive pole in lines curved downwards, and then bending upwards to the negative pole, but will likewise delineate the course of the current by particles adhering to the surface of the glass plates." * * * * *.

"But the repulsive power of the positive and attracting power of the negative pole is seen much more satisfactorily, if the water in contact with each pole is separated by a stratum of porous matter, so that the particles which are impelled from one towards the other pole may pass through the interstices, while the cohesion of the interposed body may prevent other particles from passing in the opposite direction by their own gravity. Which conditions, in fact, are easily fulfilled by taking a tube of the form of the letter U, filling its curve with sand, and its straight, upright limbs with water. The two wires being now immersed in the water in the two limbs, and the galvanic circle consequently completed, the water will be observed slowly to sink in the positive and rise in the negative end of the tube. With a voltaic pile composed of ninety-two silver roubles, and as many plates of copper, a tube 7½ inches long, and wires made of platinum, I found that in fifteen or twenty minutes, the water stood ten lines higher than before in the negative, and as much lower than before in the positive end of the tube. On interrupting the galvanic circle, the water soon returned to its original level, and on restoring the continuity of the circle, the transfer recommenced. Next day, fourteen hours after the experiment began, the positive limb was empty, the negative limb was full to overflowing. After observing that it continued thus for four days, I interrupted the galvanic circle again, and the water soon returned to its equilibrium of level."

"A similar but much more wonderful result was obtained when the interposed substance consisted of clay. I prepared a quadrangular prism of moist potter's clay, ten inches long and two inches in breadth and thickness. At each end of this prism, and five inches apart from one another, I fixed, half an inch deep in the clay, two glass tubes three inches long, an inch in diameter, and open at both ends. I then poured into each tube an inch of water and covered each of them, (loosely, however, so as to allow a passage to the air,) with a cork, through which the two wires of the battery were passed down to the middle of the water. The pile consisted this time of seventy-four double plates, such as those used in the last experiment. The following phenomena took place. As soon as the electric circle through the wet clay was completed, which was indicated by the escape of air-bubbles from the water, the clay bottom of the positive tube began to swell and raise the sand, with a thin stratum of which I had covered it to keep the water from becoming muddy. In the course of half an hour the clay appeared softened to mud, a part of which pierced through the sand, and projected upwards like a little hill. By and by the pyramid discharged from its apex a muddy liquid, which ran down the sides like lava, and soon formed over the sand a layer of mud three lines in thickness. This beautiful appearance brought forcibly to my recollection the accounts given of the phenomena of mud volcanos. The explanation obviously was, that, when by the impulse of the positive pole the water was thrust towards the negative pole upon the clay at the bottom of the tube, the clay was softened, and the water in subsequently piercing the clay, threw the mud upwards and around it, just as a gimblet does while piercing wood. For half an hour no change was observed in the level of the water in either tube, and the sand and clay remained in the negative tube quite undisturbed. But when three hours had elapsed, the level of the water in the negative tube had risen one line, in twelve hours it had risen two lines and a half; and in the meantime, the whole water of the positive tube had entered the clay, and the surface of the mud was about two lines lower than the *original situation* of the water. The following night the mud in the positive tube had sunk so far that the wire was not immersed in it; consequently the electric circle was interrupted. Nevertheless I found the level of the water in the negative tube a quarter of a line higher than before, and the clay in the positive tube was firm on its surface. The positive wire being then depressed so as to restore the continuity of the galvanic circle, the clay of that side gradually became firmer and more dry, while the water rose in the negative tube. At length in two days the latter had attained its highest level, namely, 3½ lines above its original surface, while the clay in the positive tube had become so dry as to crack. In two days more the cracks were larger, but the level of the water in the negative tube was not higher, probably because any further increase it might have received was compensated for by evaporation. That no more than one-third of the water which disappeared from the positive appeared in the negative tube,—is to be explained partly by its having evaporated, partly by its having been diffused and retained in passing through the clay between the tubes."

In addition then to the hitherto known properties of the electric current, it is endowed with the power of impelling fluids in a direction from positively to negatively electrified bodies. This power Dr. R. denominates the *vis electricitatis hydragoga;* he resorts to it to explain some terrestrial phenomena, and also the movement of the blood through the capillary system of animals, and he shows satisfactorily that the action of the heart is completely inadequate to the latter purpose. Dr. R. is of opinion that the arterial system is in a state of positive, and the venous system in a state of negative electricity; the correctness of this theory, however, remains still to be proved by experiment and observation.

PATHOLOGY.

18. *General Induration of the Arterial System.*—A man, aged fifty-six years, entered the Hospital of Toulon for the treatment of an old ulcer of the left leg, which leg was covered with varicose veins. The foot had been amputated at Smyrna, in consequence of a viper-bite, some time previously. He also complained of pain in the *left* foot, the little toe of which was observed to be swelled, cold, and of a bluish colour. This man, who was naturally robust and vigorous, had been worn down by long privations and profound chagrin. His answers and his countenance indicated a deep melancholy; he had little appetite; sleep short and interrupted; pulse large, slow, and irregular; the heart beat over a very large surface. The gangrene extended rapidly, and was considered as the consequence of the disease of the heart, which was quite unequivocal. As mortification destroyed the different parts they were removed. The pain was insupportable; the pulse became slower and slower, and the arteries offered such a degree of resistance to pressure as led to the conviction that they were ossified.

On dissection, the heart attracted great attention. It was extremely enlarged; and there were several white patches on its surface. The left ventricle offered as much resistance to the scalpel as thick and dried parchment. The origin of the aorta, as well as the aortic valves, were completely cartilaginous; and this was the case with the whole of the aorta, the iliac and crural arteries, and their branches. There were several portions of these various arteries *ossified,* besides the whole being cartilaginous. " The arteries of the upper extremities were in a similarly indurated condition."—*Ephemerides de Montpellier,* 1828.

19. *Case of almost complete Obliteration of the Aorta.*—A very interesting case of this description is related in the fourth number of the *Journal Hebdomadaire de Médecine.* A shoemaker, aged ninty-two, was admitted into La Charité, June 19th, 1817. He was of small stature, with a small bald head, and a retiring